

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.-17. (Canceled)

18. (Currently Amended) A process solution for pickling steel comprising:

a) one or more strong acids other than the complex fluoro acids of group c), and different from nitric acid, in a total concentration of at least 10 g/l and at most 200 g/l,
c) one or more complex fluoro acids of Si and/or anions thereof in concentrations from 50 to 500 mmoles per liter,

e) iron(III) cations in concentrations from at least 3 g/l to at most 100 g/l,

f) a total of from 0.1 to 10 g/l of chloride ions and/or hydrochloric acid,

~~and, optionally,~~

d) and optionally, a hydrogen peroxide stabilizer,

the process solution containing in addition an amount of fluoride ions and/or hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.

19. (Previously Presented) The process solution according to claim 18 which contains no other oxidizing agent than the iron(III) ions and dissolved oxygen, said iron (III) cations concentration being at least 5 g/l, and the concentration of c) being at least 170 mmoles per liter.

20. (Previously Presented) The process solution according to claim 18 which has a redox potential, measured at process solution working temperature with a Pt/Ag/AgCl electrode, of at least 280 mV and up to 800 mV.

21. (Previously Presented) The process solution according to claim 20, wherein the strong acids other than the complex fluoro acids of group c) are selected from sulfuric acid, phosphoric acid, and mixtures thereof.

22. **(Previously Presented)** The process solution according to claim 20, wherein the process solution is in the form of a gel or a paste.

23. **(Previously Presented)** A process for pickling steel, comprising:

- contacting steel with a process solution according to claim 18 for a time sufficient to obtain a completely de-scaled surface; and
- managing redox potential of the process solution such that the redox potential, measured at process solution working temperature with a Pt/Ag/AgCl electrode, is at least 280 mV and up to 800 mV.

24. **(Previously Presented)** The process according to claim 23 wherein the process solution is moved relative to the surface of the steel.

25. **(Previously Presented)** The process according to claim 23 wherein at least a fraction of the iron(II) ions formed during the pickling are oxidized to iron(III) ions.

26. **(Currently Amended)** A process for pickling steel, comprising:

- contacting steel with a pickling solution comprising
 - a) one or more strong acids other than the complex fluoro acids of group c), and different from nitric acid, in a total concentration of at least 10 g/l and at most 200 g/l,
 - c) one or more complex fluoro acids of Si and/or anions thereof in concentrations from 50 to 500 mmoles per liter,
 - e) iron(III) cations in concentrations from at least 3 g/l to at most 100 g/l,
 - ~~and, optionally,~~
 - d) and optionally, a hydrogen peroxide stabilizer,
- the pickling process solution containing in addition an amount of fluoride ions and/or hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that it contains less than 10 g/l of the total of free fluoride ions and/or free hydrofluoric acid, said contacting being for a time sufficient to obtain a completely de-scaled surface.

27. **(Currently Amended)** The process according to claim 26 wherein the process solution contains no other oxidizing agent than the iron(III) ions and dissolved oxygen.

28. **(Previously Presented)** The process according to claim 26 wherein the process solution additionally contains a total of from 0.1 to 10 g/l of chloride ions and/or hydrochloric acid.

29. **(Currently Amended)** The process according to claim 26 further comprising the step of managing redox potential of the process solution such that the redox potential, measured at process solution working temperature with a Pt/Ag/AgCl electrode, ~~[[of]]~~is at least 280 mV and up to 800 mV

30. **(Previously Presented)** The process according to claim 26 wherein the process solution is moved relative to the surface of the steel.

31. **(Previously Presented)** The process according to claim 26 wherein the concentration of e) iron(III) cations is from at least 5 g/l, to at most 60 g/l and the process solution contains an amount of fluoride ions and/or hydrofluoric acid such that it contains less than 5 g/l of the total of free fluoride ions and/or free hydrofluoric acid.

32. **(Previously Presented)** A process for brightening and/or passivating pickled surfaces of stainless steel, comprising:

-contacting pickled stainless steel surfaces with a process solution comprising:

a) one or more strong acids other than the complex fluoro acids of group c),

b) one or more oxidizing agents,

c) one or more complex fluoro acids of elements of groups 4, 13, or 14 of the periodic table of the chemical elements and/or anions thereof in concentrations from 50 to 200 mmoles per liter; and

-rinsing the pickled stainless steel surfaces after said contacting.

33. **(Currently Amended)** The process for brightening and/or passivating **[[of]]** pickled surfaces of stainless steel according to claim 32 wherein the oxidizing agent b) is selected from compounds containing a peroxo-group, said process solution further comprising d) a hydrogen peroxide stabilizer.

34. **(Currently Amended)** The process for brightening and/or passivating **[[of]]** pickled surfaces of stainless steel according to claim 33, wherein

- a) the strong acid is present in a concentration from 2 to 100 g/l, and
- b) the oxidizing agent is present in a concentration, expressed as the equivalent concentration of H_2O_2 , in the range from 1 to 30 g/l.

35. **(Currently Amended)** The process for brightening and/or passivating **[[of]]** pickled surfaces of stainless steel according to claim 32 wherein c) comprises one or more complex fluoro acids of Si and/or anions thereof.

36. **(Previously Presented)** A process solution comprising:

- a) one or more strong acids other than the complex fluoro acids of group c), and different from nitric acid, in a total concentration of at least 10 g/l and at most 200 g/l,
 - c) one or more complex fluoro acids of Si and/or anions thereof in concentrations from 30 to 220 mmoles per liter,
 - e) iron(III) cations in concentrations from at least 3 g/l to at most 100 g/l,
 - f) a total of from 0.1 to 10 g/l of chloride ions and/or hydrochloric acid,
and, optionally,
 - d) **and optionally,** a hydrogen peroxide stabilizer,
- the process solution containing in addition an amount of fluoride ions and/or hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.

37. **(New)** The process solution according to claim 18 wherein the process solution contains an amount of fluoride ions and hydrofluoric acid such that at least 1% and up to 100% of the

iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.

38. **(New)** The process solution according to claim 26 wherein the process solution contains an amount of fluoride ions and hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.

39. **(New)** The process solution according to claim 36 wherein the process solution contains an amount of fluoride ions and hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.

40. **(New)** The process solution according to claim 18 wherein the process solution contains an amount of hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.

41. **(New)** The process solution according to claim 26 wherein the process solution contains an amount of hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.

42. **(New)** The process solution according to claim 36 wherein the process solution contains an amount of hydrofluoric acid such that at least 1% and up to 100% of the iron(III) ions are present in the form of fluoride complexes, but such that the process solution contains less than 10 g/l of free fluoride ions and/or free hydrofluoric acid.